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Applicant(s): Bauman, et al.

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Docket No.

89190.99R321/DP-300043

Application No.

09/576,731

Filing Date

May 23, 2000

Examiner

E. Compton

Customer No.

23469

Group Art Unit

3726

Invention: **PROCESS FOR FORMING STEEL ROLLER BEARINGS**I hereby certify that this Declaration by William Bauman (3 pages)

(Identify type of correspondence)

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Docket No.  
DP-300043  
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Bauman et al.	)	
		)	
Serial No.:	09/576,731	)	Examiner: E. Compton
		)	
Filed:	May 23, 2000	)	Art Unit: 3726
		)	
For:	PROCESS FOR FORMING STEEL	)	
	ROLLER BEARINGS	)	
		)	

**DECLARATION UNDER 37 CFR §1.132 BY WILLIAM D. BAUMAN**

Assistant Commissioner for Patents  
Washington, D.C. 20231

I, William D. Bauman, P.E. declare:

1. I currently am employed as Manufacturing Engineering Manager - Valve Train Components with Delphi Inc., Energy and Chassis Systems, Grand Rapids, Michigan. I was previously employed as an engineer by AC Rochester and AC Delco Systems, precursor companies of Delphi Inc. that were subsidiaries of General Motors Corporation. My current responsibilities are process development for new products, procurement and installation of new equipment for new products for valve train applications worldwide.

2. I am a registered Professional Engineer in the state of Michigan.

3. I am a joint inventor in the above-identified patent application Serial No. 09/576,731, filed May 23, 2000 covering a PROCESS FOR FORMING STEEL ROLLER BEARINGS.

4. I reviewed the Office Action dated 05/28/2004 in which it was stated that Liu et al is directed toward selectively machining a pre-hardened component by "identifying those in-service stresses that limit service life of the component and then inducing an appropriate level of residual stress within the component [by such selective machining] in order to off-set the in-service stresses and thereby substantially optimize the component's service life" and that "one having ordinary skill in the art at the time the invention was made would have realizes (sic) that in a bearing race, such as the one disclosed by Liu et al, that the stress levels are generally normal to the inner (or outer) bearing surface rather than the end faces". (Page 3, last paragraph).

5. While many of the in-service stresses induced on a roller bearing are generally normal to the inner and outer bearing surfaces, the end faces of a roller bearing are not free from in-service stresses. In fact, because of side-loads that are typically placed on the bearings, in operation, substantial in-service stresses are placed on the end faces.

6. For example, in a pushrod lifter, significant in-service side loading of the lifter roller bearing end faces occurs because the rotational clearances between the lifter and its receiving bore and the tolerance stack-up between features of the lifter and the receiving bore do not keep the rotational axis of the bearing in line with the associated rotating cam shaft lobe. Thus, substantial in-service stresses are placed on the end faces.


7. Similar in-service side loading of the end faces of a roller bearing used in other applications would occur for these same reasons.

8. My invention is directed toward a process of manufacturing roller bearings wherein the step of machining the end faces is eliminated. Stress relief of the non-machined end faces as well as the inner and outer bearing is accomplished by a subsequent tumbling process.

9. In Liu et al, since the end faces would be identified as having in-service stresses that limit service life to one skilled in the art at the time the invention was made, Liu et al does not teach that the end faces would be unmachined by the disclosed process.

I hereby declare that all statements made herein are true, and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001, and that such willful false statements may jeopardize the validity of the application or any patent issued thereof.

Date: 8/27/04

  
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William D. Bauman, P.E.